

Ethnobotany. Lecture 19

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Outline

- 1 Oil plants
 - Technical oil plants



Oil plants

Technical oil plants



Essential oils

- Mixture of hydrophobic components bearing plant odors
- Used for aromatherapy and in cosmetics
- The most famous are probably rose oil and eucalyptus oil



Ylang-ylang, *Cananga odorata*

- Tree from custard apple family (Annonaceae) which is cultivated for perfume oil
- Fast-growing tree from Indonesia
- Has diverse medical applications, used for cosmetics (Chanel No. 5) and in aromatherapy
- Comoros is the biggest exporter of ylang-ylang (29% of its annual export)



Ylang-ylang



Camphor tree, *Cinnamomum camphora*

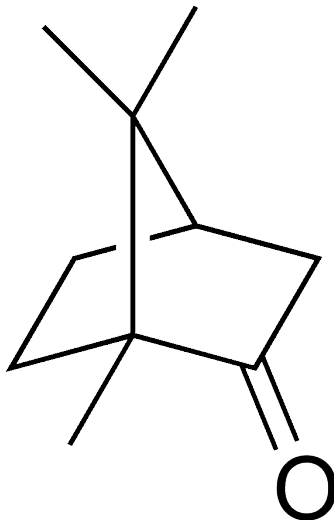
- East Asian tree from laurel family, Lauraceae
- Contain multiple aromatic substances, e.g., camphor—unusual hydrophobic molecule
- Camphor use has the old history, it still has a high ceremonial value in Hinduism, used in sweets, for aromatherapy and in fireworks (highly flammable)
- It is a Totoro tree from H. Miyazaki's "My neighbor Totoro" anime film



Camphor tree



Camphor: chair molecule



Totoro on the top of camphor tree



[From Miyazaki's "My Neighbor Totoro"]



Tung, *Vernicia (Aleurites) fordii*

- Small East Asian deciduous tree from spurge family, Euphorbiaceae
- Highly poisonous seeds contain one of the best drying oils, rich (82%) of 3-unsaturated α -eleostearic fatty acid
- Used for finishing wood (especially for musical instruments) and other staining processes



Tung fruits



Castor oil plant, *Ricinus communis*

- African and Indian shrub from spurge family, Euphorbiaceae
- Cultivated as annual in temperate regions
- Seeds are poisonous, but contain (95%) unique castor oil containing hydroxylated ricinoleic oil (unsaturated oil with –OH group)
- Widely used in traditional medicine as laxative, now used in many modern drugs as a component, and also as technical oil for lubrication, making plastics etc.
- In fascist Italy, was widely used for intimidation of Mussolini opponents (oil is not poisonous but in large quantity may be harmful)



Castor plant



Jojoba, *Simmondsia sinensis*

- Shrub of its own family (Simmondsiaceae) native to southern North America
- Name is a result of botanical mistake: botanist J. Link misread label “Calif” as “China”
- Seeds contain unique liquid wax (10°C is a melting point): combination of long-chained fatty acids and fatty alcohols
- Jojoba “oil” is odorless, colorless and oxidatively stable, used as a substitute for sperm whale oil: cosmetics, as stable lubricant (it is not digested for most organisms); and now also as biofuel
- Widely cultivated in Arizona, California and Mexico



Jojoba male flowers



Summary

- Oil palm and cocoa tree produce high amounts of plant “fats”
- The most promising contemporary oil cultures are canola and sachalin



For Further Reading



A. Shipunov.

Ethnobotany [Electronic resource].

2011—onwards.

Mode of access:

http://ashipunov.info/shipunov/school/biol_310



P. M. Zhukovskij.

Cultivated plants and their wild relatives [Electronic resource].

Commonwealth Agricultural Bureaux, 1962. Abridged translation from Russian.

Mode of access:

http://ashipunov.info/shipunov/school/biol_310/zhukovskij1962_cultivated_plants.djvu.

